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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,732	12/02/2003	Tobias Siencel	60,246-258/10781	3046
26096 7590 09/10/2007 CARLSON, GASKEY & OLDS, P.C. 400 WEST MAPLE ROAD SUITE 350 BIRMINGHAM, MI 48009			EXAMINER CIRIC, LJILJANA V	
			ART UNIT 3744	PAPER NUMBER
			MAIL DATE 09/10/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/725,732

Applicant(s)

SIENEL ET AL.

Examiner

Ljiljana (Lil) V. Ciric

Art Unit

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 May 2007 and 08 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 January 2007 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                            |                                                                                         |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

Art Unit: 3744

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office action is in response to the replies filed on January 8, 2007 and on May 31, 2007.
2. Claims 1 through 15 remain in the application, of which claims 1 through 12 are all as amended either directly or indirectly, while claims 13 through 15 are new.

### ***Response to Arguments***

3. Applicant's arguments with respect to the claims have been considered but are moot in view of the new grounds of rejection presented hereinbelow.

### ***Drawings***

4. The replacement drawings were received on January 8, 2007. These replacement drawings are NOT approved because, in addition to various objections explained in greater detail below, the replacement drawings contain new matter. In particular, Figure 2 of the replacement drawings shows refrigerant as flowing through the heat pump refrigerant circuit when compressor 38 is OFF; this constitutes new matter because, for example, the originally filed drawings (i.e., the drawings filed on December 2, 2003) do not show any refrigerant flow through the refrigerant circuit of the heat pump when compressor 38 is OFF.
5. The drawings filed on January 8, 2007 are also objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following features must be shown or the features canceled from the claims: a control for the pump as newly recited in claims 1 through 5 and 10 through 14; and, a temperature sensor which senses an ambient outdoor temperature as newly recited in claims 13 and 14. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being

Art Unit: 3744

amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

6. Receipt and entry of the amended abstract filed on January 8, 2007 is hereby acknowledged.
7. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: There is insufficient antecedent basis in the specification for the following terms now appearing in the claims: "an *on mode*" [claim 1, line 3; claim 1, line 8; claim 6, line 4; claim 10, line 5; claim 10, line 10]; "an *off mode*" [claim 1, line 4; claim 1, line 9; claim 1, line 11; claim 6, line 4; claim 10, line 6; claim 10, line 12; claim 10, line 14]; "at least one *reversible pump*" [claim 1, line 6; claim 10, line 7]; "a *control*" [claim 1, line 10; claim 10, line 13].

### *Claim Rejections - 35 USC § 112*

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:
- The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
9. Claims 1 through 5 and 10 through 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not

Art Unit: 3744

described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

For example, base claim 1 now newly recites “a control for said pump to selectively control said pump to pump the fluid in the second direction when the heat pump is in the off mode” while base claim 10 now newly recites “a *control* for said pump to selectively control said pump to pump the water in the second direction when the heat pump is in the off mode”. The originally filed disclosure (including the originally filed specification, claims, abstract, and drawings) fails to mention or otherwise clearly and specifically describe a control of any sort. The originally filed disclosure merely mentions that the pump 40 is “switched on” when the temperature sensor 42 measures a temperature below a first set point in the liquid storage reservoir 22 {paragraph [0013]}, is “switched to pump in the reverse direction at a low flow rate” to prevent freezing when the heat pump 30 is off {paragraph [0014]}, “may switch to the freeze-prevention reverse direction mode whenever the heat pump 30 is off” {paragraph [0015]}, “may switch to the freeze-prevention mode only when the temperature sensor 44 measures liquid temperature below a third set point” {paragraph [0015]}, and “switches to the freeze-prevention mode based upon the outdoor temperature” {paragraph [0015]}. Thus, while reciting a switch for the pump or associated with the reversible pump would be supported by the originally filed disclosure, more broadly reciting a control is not supported by the same and thus appears to constitute new matter for which the applicants did not demonstrate possession at the time of filing.

Also, new claim 13 newly recites the limitations “wherein a temperature sensor senses *an ambient outdoor temperature*, and said temperature sensor *sending a signal to said control*, said control only operating said pump to pump fluid in the second direction *when the sensed temperature is below a predetermined limit*” whereas new claim 14 recites the limitation “wherein a temperature sensor senses *an ambient outdoor temperature*, and said temperature sensor *sending a signal to said control*, said control only operating said pump to pump water in the second direction *when the sensed temperature is below a*

Art Unit: 3744

*predetermined limit.*” With regard to the above cited limitations, there is no support in the originally filed disclosure that the ambient/outdoor temperature sensor specifically sends a signal to a control; thus, any corresponding recitation of the same constitutes new matter for which applicants did not demonstrate possession at the time of filing. Additionally, while the originally filed specification states that “a third temperature sensor (not shown) could be provided to measure only the outdoor temperature, so that the pump 40 switches to the freeze-prevention mode based upon the outdoor temperature, or some combination of outdoor temperature and temperature measured by sensor 44” {paragraph [0015]}, the above statement (which is the *only* description corresponding to the function of the outdoor temperature sensor) fails to provide any support whatsoever for claiming that the pump control only operates the pump to pump fluid or water in the second direction when the temperature sensed by the outdoor temperature sensor *is below a predetermined limit*. Therefore, these limitations in new claims 13 and 14 also constitute new matter for which applicants did not demonstrate possession at the time of filing.

New claim 15 recites that “step (c ) only occurs *if an ambient temperature is determined to be below a predetermined level*”. As with regard to the abovementioned newly added limitations appearing in new claims 13 and 14, there is no support in the originally filed disclosure for claiming a correlation between flowing the fluid through the heat exchanger in a second (i.e., reversed) direction in response to the ambient temperature specifically being “below a predetermined level” as now recited in claim 15. Thus, the limitations in new claim 15 constitute new matter for which applicants did not demonstrate possession at the time of filing.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 6 through 9 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to base claim 6 as amended, it is not clear whether or not the limitation "a heat exchanger" appearing in line 5 of the claim is intended to refer back to the same element as the limitation "a heat exchanger" now newly recited in line 3 of the claim, thus rendering indefinite the metes and bounds of protection sought by the claim and all claims depending therefrom. Also, as a result of the former limitation having been added to base claim 6, it is now not clear whether the limitation "the heat exchanger" [claim 7, line 3; claim 7, line 5] is intended to refer back to the heat exchanger cited in line 3 of claim 6 from which claim 7 depends or to the heat exchanger cited in line 5 of claim 6, thus further rendering indefinite the metes and bounds of protection sought by the claims.

***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. As best can be understood in view of the indefiniteness of the claims, claims 6 through 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Crawford.

Crawford (especially the sixth mode of operation described in lines 10-57 of column 8) discloses a heat pump frost prevention/defrosting method essentially as claimed, including, for example, a heat pump or heat pump circuit 10 for circulating refrigerant through a heat exchanger 18 in an on-mode and not circulating refrigerant through the heat exchanger 18 in an off-mode (i.e., in an inactive mode, as described in lines 43-46 of column 8), flowing a fluid (i.e., water, as described in lines 15-21 of column 5) from a fluid or water reservoir or tank 54 to a heat exchanger 32 in a first direction when the heat pump 10 is on (i.e., when the heat exchanger 18 is in an on-mode/not in the sixth mode of operation) and in a second direction when the heat pump 10 is in an off-mode (i.e., when the heat exchanger 18 is in an off-mode/inactive/in the sixth mode of operation, as described in lines 36-46 of column 8). At least part of heat pump or heat pump circuit 10 (i.e., outdoor heat exchanger 24 is located outdoors).

The reference thus reads on the claims.

***Conclusion***

Art Unit: 3744

13. The additional prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ljiljana (Lil) V. Ciric whose telephone number is 571-272-4909. The examiner works a flexible work schedule but can normally be reached on most days during the work week between the hours of 10:30 a.m. and 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl J. Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

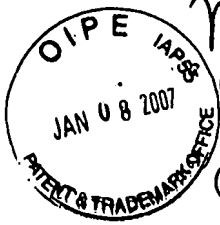


Art Unit: 3744

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

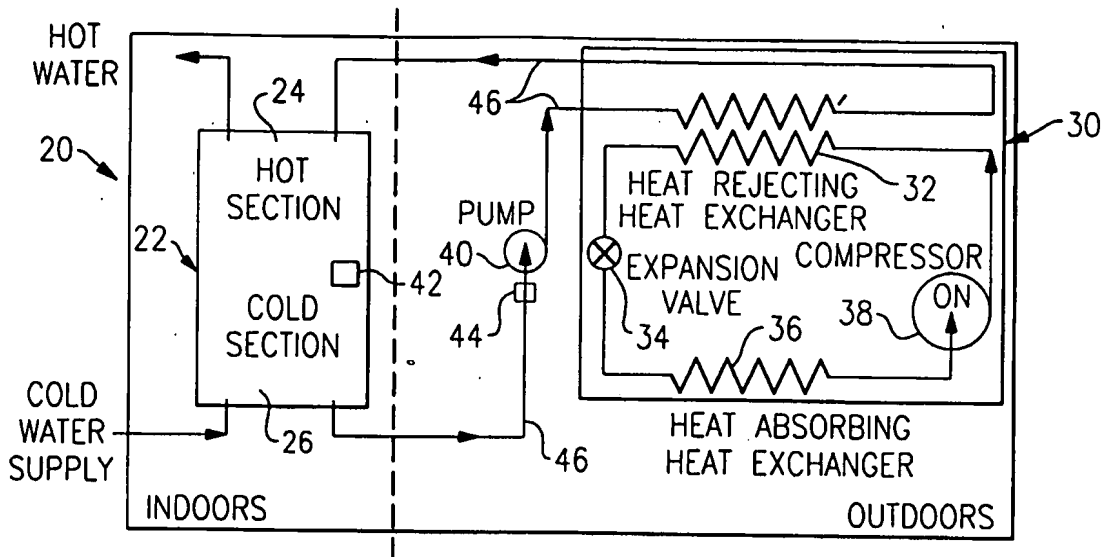


Ljiljana (Lil) V. Ciric  
Primary Examiner  
Art Unit 3744

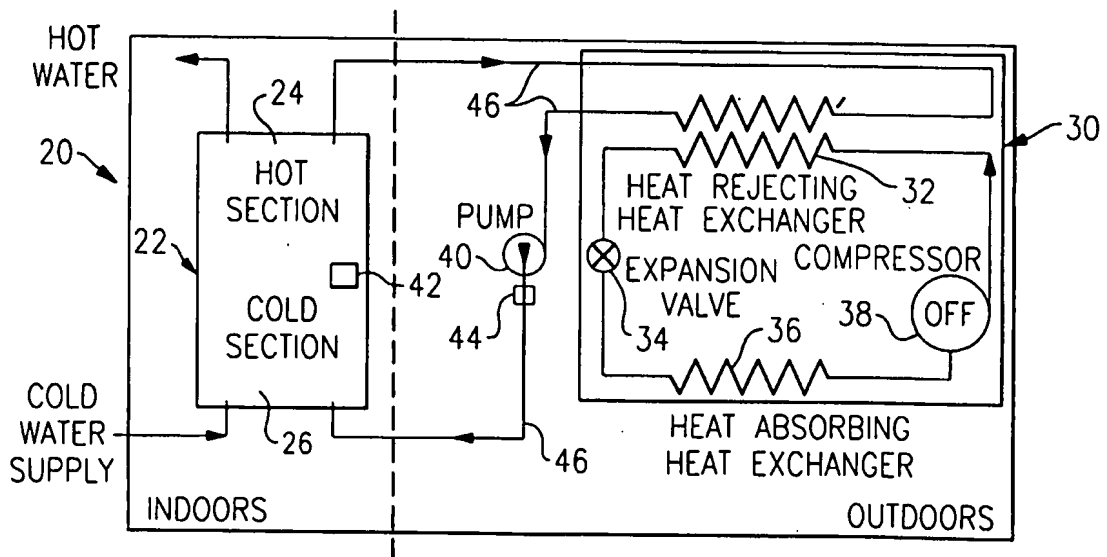


*Not approved.*  
*AVC*  
*8-31-07*

**FREEZE PROTECTION FOR HEAT PUMP SYSTEM**  
Applicant: Sienel; Serial No. 10/725,732  
REPLACEMENT DRAWINGS



**FIG.1**



**FIG.2**